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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,218

01/27/2006

Masahiro Yamashita

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3497

23838

7590

06/09/2009

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EXAMINER

YANCHUK, STEPHEN J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/09/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,218	<b>Applicant(s)</b> YAMASHITA ET AL.	
	<b>Examiner</b> STEPHEN YANCHUK	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/04/2008, 01/27/2006</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

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**ELECTROLYTE MEMBRANE-ELECTRODE ASSEMBLY, FUEL CELL USING THE  
SAME, AND METHOD FOR PRODUCING ELECTROLYTE MEMBRANE-  
ELECTRODE ASSEMBLY**

**DETAILED ACTION**

1. The response to restriction has been considered and found that species group I, II, and III as indicated in the restriction election should have been filed as one species. The following action makes the species **Group I being claims 1-15** and **Group II being claims 16-17**. Since the applicant did not elect Group IV as indicated on the response filed 04/27/2009, Group I as stated above (claims 1-15) will be examined in this following action. The examiner holds that the new groups are proper as will be clear by the following rejections of claim 1.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

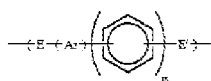
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

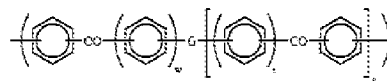
2. Claim 1 & 3-15 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Andrews et al. (WO 01/71839 with PGPUB 2004/0020764 being the reference numbers).

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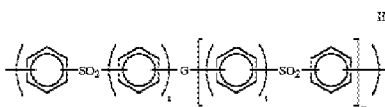
Claim 1 & 3- 13 are rejected by Andrews teaching ion exchange materials that have reduced sensitivity to water using treated sulphonated polyaryletherketone and/or sulphone [Abstract]. Three basic moieties are taught as shown below in I, II, and III.



I



II



III

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It is taught that m, r, s, t, v w, and z can be zero or positive, E and E' represent oxygen, sulphur, or direct link, G represents oxygen or sulphur or direct link or a O-Ph-O moiety and Ar is selected from various divalent aromatic groups as indicated from (i)-(x) [Paragraph 19-23]. The phenol rings can be modified to include XO<sub>3</sub>S [Paragraph 21-28]. Optional substituents of the phenyl moieties are also taught to be CN [Paragraph 29].

The electrolyte layer of the reference is identical to the presently claimed structure and composition. Therefore, the claimed ion exchange capacity, humidity, tensile strength, permeation, and water absorption are presumed to be inherent to the electrode of the reference. Analyzing the physical properties in a different manner than the prior art does not place an application in condition for allowance. It is taught that various configurations of the polymers can make transition temperatures from 144°C to 300°C.

Claims 14 and 15 are rejected by the teaching of a the ion exchange materials being used in a fuel cell [Figure 1].

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al. (WO 01/71839 with PGPUB 2004/0020764 being the reference numbers) as applied to claim 1 above, and further in view of Inoue et al. (PGPUB 2001/0044042).

Andrews teaches the membrane layer as applies to claim 1 but fails to teach the periphery of the solid polymer electrolyte membrane being sealed.

Inoue teaches the periphery of the solid polymer electrolyte membrane being sealed to maintain gas-tightness between the membrane and the separators [Paragraph 18]. It would have been obvious for one of ordinary skill in the art to combine the teachings of Inoue with Andrews because Inoue teaches improved sealing which prevents the reduction of the efficiency in the electric power generation [Paragraph 12].

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YANCHUK whose telephone number is (571)270-7343. The examiner can normally be reached on Monday through Thursday 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN YANCHUK/  
Examiner, Art Unit 1795

/PATRICK RYAN/  
Supervisory Patent Examiner, Art Unit 1795